

DETAILED OFFICE ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/22/10 has been entered.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jeffrey L. Costellia on 8/17/10.

The application has been amended as follows:

1. (Presently Amended) A plasma treatment apparatus comprising:

a plasma generation unit comprising a first electrode provided on a first substrate and a plurality of second electrodes opposed to the first electrode and provided on a second substrate, wherein the first electrode and the plurality of second electrodes are substantially planar and are disposed in parallel;

a gas supply unit adapted to discharge a process gas into a space between the first electrode and the plurality of second electrodes and onto a third substrate to be treated; and

a unit for controlling a voltage applied to a selected electrode among the plurality of second electrodes,

wherein the plurality of second electrodes are arranged linearly in one line,

wherein at least one of the plurality of second electrodes has a length of equal to or less than 1 mm along the one line, on a side of the third substrate to be treated,

wherein the first electrode and the plurality of second electrodes are arranged perpendicular to the third substrate to be treated, and

wherein the plasma generation unit is configured to move in an X direction and a Y direction.

Claim 2 – Cancelled.

3. (Presently Amended) A plasma treatment apparatus comprising:

a plasma generation unit comprising a first electrode provided on a first substrate and a plurality of second electrodes opposed to the first electrode and provided on a second substrate, the plasma generation unit being adapted to form a pattern on a third substrate to be treated, and wherein the first electrode and the plurality of second electrodes are substantially planar and are disposed in parallel;

a gas supply unit adapted to discharge a process gas into a space between the first electrode and the plurality of second electrodes and onto the third substrate to be treated; and

a unit for controlling a voltage applied to a selected electrode among the plurality of second electrodes,

wherein the plurality of second electrodes are arranged linearly in one line,

wherein at least one of the plurality of second electrodes has a length along the one line, of equal to or less than a square of a line width of the pattern on a side of the third substrate to be treated;

wherein the first electrode and the plurality of second electrodes are arranged perpendicular to the third substrate to be treated, and

wherein the plasma generation unit is configured to move in an X direction and a Y direction.

Claims 2, 11, 14, 17, 20, 21, 23, 24-31, 33-44, 46, 48-50, 52, 54-56, 59, 60, 63-68: Cancelled.

Allowable Subject Matter

Claims 1, 3, 4, 10, 12, 13, 15, 16, 18, 19, 21, 22, 45, 47, 51, 53, 57, 58, 61 and 62 allowed (total 20 claims).

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Claim 1 – Closest prior arts [Gianchandani et al (WO 01/27969, corresponding to US 6,827,870), Satoshi (JP 2003-059909) and Takuya (JP 2002-320845)] do not teach claim 1 limitation "a plasma generation unit comprising a first electrode provided on a first substrate and a plurality of second electrodes opposed to the first electrode and

provided on a second substrate, wherein the first electrode and the plurality of second electrodes are substantially planar and are disposed in parallel;

 a gas supply unit adapted to discharge a process gas into a space between the first electrode and the plurality of second electrodes and onto a third substrate to be treated; and

 a unit for controlling a voltage applied to a selected electrode among the plurality of second electrodes,

 wherein the plurality of second electrodes are arranged linearly in one line,

 wherein at least one of the plurality of second electrodes has a length of equal to or less than 1 mm along the one line, on a side of the third substrate to be treated,

 wherein the first electrode and the plurality of second electrodes are arranged perpendicular to the third substrate to be treated" in the context of remaining limitations of the claim.

Claim 3 – Closest prior arts [Gianchandani et al (WO 01/27969, corresponding to US 6,827,870), Satoshi (JP 2003-059909) and Takuya (JP 2002-320845)] do not teach claim 3 limitation "

 a plasma generation unit comprising a first electrode provided on a first substrate and a plurality of second electrodes opposed to the first electrode and provided on a second substrate, the plasma generation unit being adapted to form a pattern on a third substrate to be treated, and wherein the first electrode and the plurality of second electrodes are substantially planar and are disposed in parallel;

a gas supply unit adapted to discharge a process gas into a space between the first electrode and the plurality of second electrodes and onto the third substrate to be treated; and

a unit for controlling a voltage applied to a selected electrode among the plurality of second electrodes,

wherein the plurality of second electrodes are arranged linearly in one line,

wherein at least one of the plurality of second electrodes has a length along the one line, of equal to or less than a square of a line width of the pattern on a side of the third substrate to be treated;

wherein the first electrode and the plurality of second electrodes are arranged perpendicular to the third substrate to be treated" in the context of the remaining limitations of the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH DHINGRA whose telephone number is (571)272-5959. The examiner can normally be reached on 8:30 - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Parviz Hassanzadeh/
Supervisory Patent Examiner, Art Unit 1716

/R. D./
Examiner, Art Unit 1716